

In the Claims

Please amend claims 1-3 and 10-16 as follows:

1. (Currently Amended) A method for retrieving data from a database according to retrieval conditions set forth in an issued SQL sentence, comprising:

parsing the issued SQL sentence;

making a comparison, immediately after parsing the issued SQL sentence, between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated dynamically and a cost required when retrieval is performed without generating an index dynamically;

dynamically generating an index corresponding to the retrieval condition if the cost required when the retrieval is performed without generating an index dynamically is higher as a result of the cost comparison; and

retrieving the data from the database by using the dynamically generated index.

2. (Currently Amended) A method for retrieving data from a database according to retrieval conditions set forth in an issued SQL sentence, comprising:

parsing the issued SQL sentence;

making a comparison, immediately after parsing the issued SQL sentence,
between a cost required when retrieval is performed after an index corresponding to a
retrieval condition is generated dynamically and a cost required when retrieval is
performed without generating an index dynamically;

determining whether or not a first index which satisfies a condition wider
than the retrieval condition exists among already generated indexes, if the cost required
when the retrieval is performed without generating an index dynamically is higher as a
result of the cost comparison;

dynamically generating a second index which satisfies only the retrieval
condition by using the first index, if the first index which satisfies the wider condition
exists; and

retrieving the data from the database by using the dynamically generated
second index.

3. (Currently Amended) A method for retrieving data from a
database according to retrieval conditions set forth in an issued SQL sentence,
comprising:

parsing the issued SQL sentence;

making a comparison, immediately after parsing the issued SQL sentence,
between a cost required when retrieval is performed after an index corresponding to a

retrieval condition is generated dynamically and a cost required when retrieval is performed without generating an index dynamically;

determining whether or not two or more indexes which satisfy the retrieval condition by being combined exist among a plurality of already generated indexes, if the cost required when the retrieval is performed without generating an index dynamically is higher as a result of the cost comparison;

dynamically generating an index corresponding to the retrieval condition by combining the two or more indexes, if the two or more indexes exist; and

retrieving the data from the database by using the dynamically generated index.

4. (Previously presented) The method according to claim 1, further comprising:

managing data of the number of accesses, a generation date and time, and an update frequency of the dynamically generated index; and

deleting the dynamically generated index according to management status of the data.

5. (Previously presented) The method according to claim 1, further comprising:

determining whether or not an already generated index that is applicable to an access process exists, if an access to the database is a data update or deletion;

determining whether or not access performance of the access process is degraded due to existence of the index, if the index exists; and

deleting the index prior to start of the access process, if the access performance is degraded.

6. (Previously presented) The method according to claim 2, further comprising:

managing data of the number of accesses, a generation date and time, and an update frequency of the dynamically generated index; and

deleting the dynamically generated index according to management status of the data.

7. (Previously presented) The method according to claim 2, further comprising:

determining whether or not an already generated index that is applicable to an access process exists, if an access to the database is a data update or deletion;

determining whether or not access performance of the access process is degraded due to existence of the index, if the index exists; and

deleting the index prior to start of the access process, if the access performance is degraded.

8. (Previously presented) The method according to claim 3, further comprising:

managing data of the number of accesses, a generation date and time, and an update frequency of the dynamically generated index; and

deleting the dynamically generated index according to management status of the data.

9. (Previously presented) The method according to claim 3, further comprising:

determining whether or not an already generated index that is applicable to an access process exists, if an access to the database is a data update or deletion;

determining whether or not access performance of the access process is degraded due to existence of the index, if the index exists; and

deleting the index prior to start of the access process, if the access performance is degraded.

10. (Currently Amended) A computer-readable storage medium on which is recorded a program for causing a computer to execute a data retrieval process

from a database according to retrieval conditions set forth in an issued SQL sentence, when the data retrieving process is being used by the computer, said process comprising:

parsing the issued SQL sentence;

making a comparison, immediately after parsing the issued SQL sentence,

between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated dynamically and a cost required when retrieval is performed without generating an index dynamically;

dynamically generating an index corresponding to the retrieval condition if the cost required when the retrieval is performed without generating an index dynamically is higher as a result of the cost comparison; and

retrieving the data from the database by using the dynamically generated index.

11. (Currently Amended) A computer-readable storage medium on which is recorded a program for causing a computer to execute a data retrieving process from a database according to retrieval conditions set forth in an issued SQL sentence, when the data retrieving process is being used by the computer, said process comprising:

parsing the issued SQL sentence;

making a comparison, immediately after parsing the issued SQL sentence,

between a cost required when retrieval is performed after an index corresponding to a

retrieval condition is generated dynamically and a cost required when retrieval is performed without generating an index dynamically;

determining whether or not a first index which satisfies a condition wider than the retrieval condition exists among already generated indexes, if the cost required when the retrieval is performed without generating an index dynamically is higher as a result of the cost comparison;

dynamically generating a second index which satisfies only the retrieval condition by using the first index, if the first index which satisfies the wider condition exists; and

retrieving the data from the database by using the dynamically generated second index.

12. (Currently Amended) A computer-readable storage medium on which is recorded a program for causing a computer to execute a data retrieval process from a database according to retrieval conditions set forth in an issued SQL sentence when the data retrieving process is being used by the computer, said process comprising:

parsing the issued SQL sentence;

making a comparison, immediately after parsing the issued SQL sentence,

between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated dynamically and a cost required when retrieval is performed without generating an index dynamically;

determining whether or not two or more indexes which satisfy the retrieval condition by being combined exist among a plurality of already generated indexes, if the cost required when the retrieval is performed without generating an index dynamically is higher as a result of the cost comparison;

dynamically generating an index corresponding to the retrieval condition by combining the two or more indexes, if the two or more indexes exist; and

retrieving the data from the database by using the dynamically generated index.

13. (Currently Amended) Apparatus for retrieving data from a database according to retrieval conditions set forth in an issued SQL sentence, comprising:

a parsing device parsing the issued SQL sentence;

an access process optimizing unit making a comparison, immediately after parsing the issued SQL sentence, between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated dynamically and a cost required when retrieval is performed without generating an index dynamically;

a dynamic index generating unit generating an index dynamically corresponding to the retrieval condition if the cost required when the retrieval is performed without generating an index dynamically is higher as a result of the cost comparison; and

an access processing unit retrieving the data from the database by using the dynamically generated index.

14. (Currently Amended) Apparatus for retrieving data from a database according to retrieval conditions set forth in an issued SQL sentence, comprising:

a parsing device parsing the issued SQL sentence;

an access process optimizing unit making a comparison, immediately after parsing the issued SQL sentence, between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated dynamically and a cost required when retrieval is performed without generating an index dynamically;

an index managing unit determining whether or not a first index which satisfies a condition wider than the retrieval condition exists among already generated indexes, if the cost required when the retrieval is performed without generating an index dynamically is higher as a result of the cost comparison;

a dynamic index generating unit dynamically generating a second index which satisfies only the retrieval condition by using the first index, if the first index which satisfies the wider condition exists; and

an access processing unit retrieving the data from the database by using the dynamically generated second index.

15. (Currently Amended) Apparatus for retrieving data from a database according to retrieval conditions set forth in an issued SQL sentence, comprising:

a parsing device parsing the issued SQL sentence;

an access process optimizing unit making a comparison, immediately after parsing the issued SQL sentence, between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated dynamically and a cost required when retrieval is performed without generating an index dynamically;

an index managing unit determining whether or not two or more indexes which satisfy the retrieval condition by being combined exist among a plurality of already generated indexes, if the cost required when the retrieval is performed without generating an index dynamically is higher as a result of the cost comparison;

a dynamic index generating unit dynamically generating an index corresponding to the retrieval condition by combining the two or more indexes, if the two or more indexes exist; and

an access processing unit retrieving the data from the database by using the dynamically generated index.

16. (Currently Amended) Apparatus for retrieving data from a database according to retrieval conditions set forth in an issued SQL sentence, comprising:

parsing means for parsing the issued SQL sentence;

access process optimizing means for making a comparison, immediately after parsing the issued SQL sentence, between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated dynamically and a cost required when retrieval is performed without generating an index dynamically;

dynamic index generating means for generating an index dynamically corresponding to the retrieval condition if the cost required when the retrieval is performed without generating an index dynamically is higher as a result of the cost comparison; and

access processing means for retrieving the data from the database by using the dynamically generated index.